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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/282,145	03/31/1999	GERD SCHOENWOLF	P98.2881	8232
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BELL, BOYD & LLOYD, LLC P. O. BOX 1135 CHICAGO, IL 60690-1135			EXAMINER CORRIELUS, JEAN M	
			ART UNIT	PAPER NUMBER
			2162	

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/282,145

Applicant(s)

SCHOENWOLF ET AL.

Examiner

Jean M Corrielus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,4,8-24 and 26-34 is/are rejected.
- 7) ☒ Claim(s) 2,5-7 and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to amendment filed on October 8, 2004, in which claims 2-34 are presented for further examination.

Request For Continued Examination (RCE)

2. The request for Continued Examination (RCE) filed on October 8, 2004 under 37 CFR 1.114 has been entered. The information referred to therein has been considered as to the merits.

Response to Arguments

3. Applicant's arguments with respect to claims 2-34 have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 3-4, 8-24 and 26-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al US Patent no.6, 301,582 and Peters et al., (hereinafter "Peter") US Patent No. 6,785,786.

As to claim 3, Johnson discloses the recited features "a database for storing persistent data" as a two level storage systems persistent data (col.2, lines 17-18); "a buffer into which is written all data to be permanently stored" as a shared persistent virtual storage (item 190) which includes a virtual storage manager (item 208); virtual address translator (item 210), wherein said virtual address (201) comprises a hasher, hash table and a lookaside buffers; and page cache (item 212) in which data has been stored (see fig.2). Applicants should duly note that the lookaside buffer disclosed by Johnson does not directly connect to the permanent memory (data storage item 206 of fig.6). Johnson discloses "a permanent memory connected to the buffer, the permanent memory having at least first and second storage units, into which the persistent data is alternately written" this limitation is disclosed in Johnson as a data storage (206) connected to the shared persistent virtual storage (item 190) having at least two storage area ((Backing store)1 and (Backing store)2) into which the persistent data is alternately written (see fig.2). Johnson does not explicitly the use of having the backing storage structured to store a complete permanent configuration. However, the data storage of Johnson is connected to the share persistent virtual storage (item 190 of fig.2), which contains a lookaside buffer, wherein said lookaside buffer is connected to the data storage through the use of the shared persistent virtual storage, wherein Johnson discloses that each storage unit being structured to store a complete permanent

configuration function by simply copying the persistent object from backing store when is needed (col.7, lines 27-34). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Johnson' system, wherein the lookaside buffer provided therein (see Johnson's fig.2) would directly connect to the data storage in order to alternately transfer data from a first storage unit to a second storage unit, thereby facilitating faster access.

Furthermore, the file system disclosed by Johnson contains general knowledge of the organization of the data stored on storage devices, wherein the memories and disks needed to implement properties and performance of a desired storage architecture. Notably, there is expectancy that the data stored on the file system will be preserved until explicitly removed. Therefore, persistency with respect to the storage of content is paramount to other properties and performance metrics such as organization of, and speed of access to, the to stored content. Such of these characteristics of a file system are not generally suited to the access and volatility characteristics of a cache system, wherein a cache object is characterized as a collection of data that is persistent over a predetermined period of time but that can be recovered if lost, such a novel object cache store to provide fast and efficient storage of data as cache objects.

On the other hand, Peters discloses analogous system that includes a plurality of storage units connected with multiple applications using a computer network, wherein the data is divided into segments and each segment is stored on one of the storage units. In particular, Peters discloses the claimed "wherein the configuration data that is complete for configuration is alternately written into the storage units by writing the complete configuration data into one of the storage units completely and thereafter a later version of the configuration data is stored in

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the other storage unit completely such that if the later version is lost during loading, the persistent data that is complete for configuration stored in at least one of the storage units continues to exist and is recoverable” wherein the data is recovered in a distributed data storage system having a plurality of storage units for storing the data, wherein segments of the data and redundancy information stored on the storage units are randomly distributed among the plurality of storage units, when failure of one of the storage units is detected. So to recover the data segments of which copies were stored on the failed storage unit are identified, wherein the redundancy information is used to reconstruct a copy of the identified segment, which are then randomly distributed among the plurality of storage units (col.5, lines 8-20). Therefore, it would have been obvious to one having ordinary skilled in the art at the time the invention was made to combine the teachings of the cited references, wherein the data storage provided therein (see Johnson’s fig.2, item 206) will incorporate the teaching of Peter. One having ordinary skill in the art would have found it motivated to utilize such a data recovery for the purpose of reconstructing a copy of the identified segments, which are then randomly distributed among the plurality of storage units.

Claim 10 is rejected under the same analysis stated in claim 3 above.

As to claim 12, Johnson discloses the above mentioned limitations as follow: “a database for storing persistent data” as a two level storage systems persistent data (col.2, lines 17-18); “a buffer into which is written all data to be permanently stored” as a shared persistent virtual storage (item 190) which includes a virtual storage manager (item 208); virtual address translator

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(item 210), wherein said virtual address (201) comprises a hasher, hash table and a lookaside buffers; and page cache (item 212) in which data has been stored (see fig.2). The lookaside buffer disclosed by Johnson does not directly connect to the permanent memory (data storage item 206 of fig.6). Johnson discloses "a permanent memory connected to the buffer, the permanent memory having at least first and second storage units, into which the persistent data is alternately written" this limitation is disclosed in Johnson as a data storage (206) connected to the shared persistent virtual storage (item 190) having at least two storage area ((Backing store)1 and (Backing store)2) into which the persistent data is alternately written (see fig.2). Johnson does not explicitly the use of having the backing storage structured to store a complete permanent configuration. However, the data storage of Johnson is connected to the share persistent virtual storage (item 190 of fig.2), which contains a lookaside buffer, wherein said lookaside buffer is connected to the data storage through the use of the shared persistent virtual storage, wherein Johnson discloses that each storage unit being structured to store a complete permanent configuration function by simply copying the persistent object from backing store when is needed (col.7, lines 27-34). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Johnson' system, wherein the lookaside buffer provided therein (see Johnson's fig.2) would directly connect to the data storage in order to alternately transfer data from a first storage unit to a second storage unit, thereby facilitating faster access.

Furthermore, the file system disclosed by Johnson contains general knowledge of the organization of the data stored on storage devices, wherein the memories and disks needed to implement properties and performance of a desired storage architecture. Notably, there is

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expectancy that the data stored on the file system will be preserved until explicitly removed. Therefore, persistency with respect to the storage of content is paramount to other properties and performance metrics such as organization of, and speed of access to, the to stored content. Such of these characteristics of a file system are not generally suited to the access and volatility characteristics of a cache system, wherein a cache object is characterized as a collection of data that is persistent over a predetermined period of time but that can be recovered if lost, such a novel object cache store to provide fast and efficient storage of data as cache objects.

On the other hand, Peters discloses analogous system that includes a plurality of storage units connected with multiple applications using a computer network, wherein the data is divided into segments and each segment is stored on one of the storage units. In particular, Peters discloses the claimed “a hardware implementation, of a terminal or cards of the terminal, at least one of the permanent configurations stored having a complete configuration available and being selected for hardware implementation, wherein the buffer has at least first and second random access memories functionally connected in series, persistent data stored in the first random access memory is available for reloading while persistent data from the second or further random access memory is written into permanent memory” wherein the data is recovered in a distributed data storage system having a plurality of storage units for storing the data, wherein segments of the data and redundancy information stored on the storage units are randomly distributed among the plurality of storage units, when failure of one of the storage units is detected. So to recover the data segments of which copies were stored on the failed storage unit are identified, wherein the redundancy information is used to reconstruct a copy of the identified segment, which are then randomly distributed among the plurality of storage units (col.5, lines 8-20). Therefore, it

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would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of the cited references, wherein the data storage provided therein (see Johnson's fig.2, item 206) will incorporate the teaching of Peter. One having ordinary skill in the art would have found it motivated to utilize such a data recovery for the purpose of reconstructing a copy of the identified segments, which are then randomly distributed among the plurality of storage units.

As to claims 4, 17 and 26, Johnson substantially discloses the invention as claimed, including the recited "wherein all of the persistent data stored in the buffer is alternately written into one of the storage units or storage areas of the permanent memory" (col.2, lines 18-24).

As to claims 8, 21 and 30, Johnson discloses the claimed "wherein only the persistent data, if necessary including reconstruction data, is transferred into the buffer from a first memory which contains a run-time program and associated permanent data" (col.2, lines 30-33).

As to claims 9, 22 and 31, Johnson discloses the claimed "wherein the persistent data is stored in a space-saving manner as a data sequence in the buffer and in the permanent memory" (col.5, lines 1-4).

As to claims 11 and 32, Peter substantially discloses the invention as claimed including the recited "wherein if construction data which is useable for reconstruction is present in the

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buffer, the configuration data to be written into a first memory is automatically recovered from the reconstruction data stored in the buffer" (col.5, lines 8-25).

As to claims 13, 23 and 33, Johnson does not explicitly disclose a loadable Flash Erasable Programmable Read Only Memory chip. Flash Erasable Programmable Read Only Memory chip is old and well known in the art, according to Microsoft press computer dictionary. It would have been obvious to one having ordinary skill in the art at the time the invention was made to implement Johnson' system, including a loadable Flash Erasable Programmable Read Only Memory chip. This motivation would have been to allow Johnson's permanent memory to stay stable for long periods without electricity while still allowing reprogramming.

As to claims 16, 24 and 34, Johnson discloses the claimed "wherein a number of configuration changes are only performed at a data management side and thereafter at least one of a functional and a hardware change comprising all configuration changes is performed in the terminal" as a means wherein Java compiler compiles programs written in Java which is platform independent commands that can be interpreted and run by JVM, which must be implemented for each platform on which the Java program must be run (col.7, lines 65-col.8, line 6).

As to claims 18 and 27, Johnson discloses the claimed "wherein all of the persistent data is stored in the buffer is alternately written into one of the storage units of the permanent memory" (col.11, lines 5-25).

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As to claims 19 and 28, Johnson substantially discloses the invention as claimed, including the recited "wherein the modified data sequences are written into the storage segments of the permanent memory at predetermined time intervals" (col.2, lines 18-24).

As to claims 20 and 29, Johnson substantially discloses the invention as claimed, including the recited "wherein the modified data sequences are written into the storage segments of the permanent memory after a predetermined number of modifications" (col.2, lines 18-24).

Allowable Subject Matter

7. Claims 2, 5-7 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for Indicating Allowable Subject Matter

8. The following is an examiner's statement of reasons for allowance: Upon searching a variety of databases, the examiner respectfully submits that □ wherein the data base further comprises a control mechanism within a first application process for management of a first memory controls writing of the data to be persistently stored into the buffer, the data being generated or modified by the first application process alone or also by other application, processes running simultaneously with the first application process, wherein only modified data sequences are alternately written into storage segments of the permanent memory□ in conjunction with all other limitations of the dependent and independent claims not taught nor suggested by the prior art of record (PTO-892 and 1449).

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9. Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

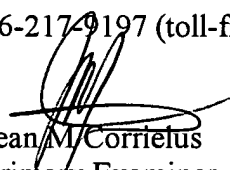
Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean M Corrielus whose telephone number is (571)272-4032. The examiner can normally be reached on 10 hours shift.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571)272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jean M. Corriellus
Primary Examiner
Art Unit 2162

January 21, 2005